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OPEN LETTERS.

THE TROPICAL LABORATORY.

UNEXPECTEDLY I have had the opportunity of visiting several of the West Indian islands, and of comparing their botanical possibilities in a superficial way. The readers of the GAZETTE may find of interest a few statements regarding the principal regions, in their bearing upon the tropical biological station which was under consideration.

Jamaica lies six days south of New York, and it requires fifty dollars to pay for the steamer cabin; Trinidad is eight days, and a cabin costs seventy-five dollars.

There can be no question to one who has seen other tropical regions that, while Jamaica has the more beautiful scenery, Trinidad possesses a far more luxuriant vegetation. The difference in luxuriance is similar to that between the vegetation of Fiji and Samoa, and does not consist so much in the difference of species as in their development. The valleys and hillsides of Jamaica are covered with the most graceful imaginable patches of bamboo (*B. vulgaris*), standing as monuments to the value of early attempts at plant introduction; the valleys of Trinidad are shaded by gigantic clumps of the same plant which overarch the roads and streams and shade them in the most charming way. Scattered through the gorgeously colored vegetation of the hillsides in Trinidad are innumerable palms, which raise their plumes above the surrounding trees and shrubs; lianas are abundant, and cover the precipitous cliffs like a tattered lace curtain. The streams of Jamaica flow between mountains that are much higher than those of Trinidad; the vegetation of the hillsides is distinctly luxuriant, and, from a scenic standpoint, superior to Trinidad.

Unfortunately for Jamaica the money appropriated for botanical purposes has been expended upon several widely separated stations: the cinchona gardens in the mountains; the old garden at Bath, now abandoned; the Castle gardens, now only cared for by a gardener who spends one day a week upon the ground; and the so-called Hope gardens, within a half hour's ride of Kingston by electric train. The Castleton gardens are well kept up and attractive, but quite small, covering only a few acres, and containing a quite limited number of plants. The fine Cohune palms from Central America, teak, brazilnut trees, a Carnahuba palm from Brazil, Heveas, *Castilloa*, *Manihot Glaziovii* and other rubber-bearing plants, as well as the gorgeous flowered *Amherstia nobilis*, *Spathodea campanulata*, and the familiar East Indian durian, carambola, and mangosteen fruit trees form some of its principal curiosities.

Three small two-roomed cottages and a small eating house on the hill above the gardens are kept by a native hotel keeper. These furnish the only accommodations possible for a visiting botanist in this quite out-of-the-way, secluded spot. A description of the Jamaica gardens has already been published in the *GAZETTE* by their able director, Mr. Fawcett. The American student would find it difficult to study at Castleton, as there is no laboratory, and carriage hire to and from Kingston would prove rather expensive. All laboratory material would necessarily be transported from Kingston to this isolated spot, as well as in large part the canned goods upon which he would find it necessary to live.

The well-equipped laboratory of the Hope gardens is one half hour from the town of Kingston. The visitor would be obliged to live in the city of Kingston, and go back and forth on the electric car every day. The laboratory is not equipped for all kinds of botanical work, but is an airy, well kept place, which would form a very pleasant laboratory for a herbarium student, and could easily be fitted up with appliances for microtome or physiological work. The hotel at Kingston at which the visitor would be obliged to put up is quite impossible from an American standpoint, and would go a long way toward giving him several sorts of tropical complaints should he stay long.

Port Antonio, on the north coast of the island, possesses no garden, and the Johns Hopkins laboratory, in which Dr. Humphrey contracted the fever from which he died, consisted of several converted rooms in Captain Baker's excellent American hotel, built upon the substantial profits of the banana trade. Port Antonio is a small town, very picturesquely built on the coast, but affording little of interest in the way of native life and characteristic markets in comparison with Kingston. The roads lead directly through cocoanut plantations or banana fields into the mountains, whence material for study would be easily obtained.

In Kingston, the Jamaica Institute, with its good library of West Indian books, the museum of West Indian natural history, and the laboratory of agricultural chemistry, under the able management of Messrs. Duerden, Condall, and Watts, respectively form a collection of great value to a visitor, enabling him to orient himself quickly in the problems of tropical botany and zoology. So far as official scientists are concerned, Jamaica seems much better supplied than any of the other British West Indian islands. The Agricultural Society, with Mr. Doust in charge, would prove of material assistance to any student interested in agriculture.

The gardens in Trinidad are the largest and best cared for of any it has been my fortune to visit in the West Indies. They are situated beautifully on the open square or "savanna" in the center of the residence portion of the city of Port of Spain. The laboratory is small, but equipped with many of the useful utensils of a working botanist, and a small library of botanical

works. Mr. Hart, the director, whose hospitality I cannot fail to mention in this place, is an indefatigable worker, and would put at the disposition of the visitor every facility in his power. His neatly arranged experimental farm, not far from the gardens, has quite the appearance of a young American experiment station, and his breeding experiments on sugar cane and other plants show his keen interest in the coming problems of tropical agriculture.

The roadways, although few, lead at once into the virgin forest, and with the assistance of a bicycle a collector could easily get together an abundance of material for study. Should he wish to take up the study of any of the many problems which confront the agriculturists of the colony, the utmost would be done to assist him, and pecuniary assistance in the way of compensation for the results of his studies would be a possibility.

The Victoria Institute, with its large comfortable building on the other side of the savanna from the gardens, might prove useful should more room be required than is available in the garden laboratory, or the new building of the experimental farm soon to be constructed.

A comfortable hotel, good shops, a public library, a society of English and Scotch, and a most interesting mixture of East Indians, Chinese, West Indian blacks, and Portuguese make Port of Spain a place full of things, other than botanical, to be studied. I am free to say that, as an average American, Trinidad proved much more to my liking than Jamaica, although the latter has roads all over it, and is more picturesque.

From Trinidad excursions can be made up that as yet little known river, the Orinoco, and to the many small islands lying nearer the mainland.

From the standpoint of a superficial study of the two islands I cannot but express my opinion in favor of Trinidad as the place for a botanic station. Should, however, the lately acquired island of Puerto Rico prove more suitable for a biological station, as seems quite possible, certainly any young student of tropical botany cannot afford to neglect the advantage which Trinidad affords as a place in which to become acquainted with West Indian agriculture and botany.

The recent establishment at Barbados of a Department of Agriculture for the West Indies, with Dr. Morris as commissioner, may in time change the conditions there. At present Barbados has little to offer the student.

The islands of the French West Indies and other of the British West Indies have botanic stations upon them, but, so far as my information goes, are not to be considered in connection with Trinidad or Jamaica.

It would seem to the writer as not at all beyond the pocket of many American botanists to spend a summer vacation in Trinidad, and could they realize the enthusiasm which these tropical plants and animals awaken, they would need no urging.—D. G. FAIRCHILD, on board "Canada," off Savanilla, U. S. of Colombia, February 15, 1899.